fragmenting device, said device having a housing and an ultrasonic horn within and attached to said housing, wherein the elongate ultrasonic probe is configured for attachment to the ultrasonic horn, has an outer surface about and along its length, has vibratory nodes spaced along its length, and has a flange that circumscribes the elongate ultrasonic probe at or near the most distal vibratory node of the probe, said protective sheath comprising:

a continuous hollow sleeve having a proximal end and a distal end, said sleeve being configured to surround the elongate ultrasonic probe and extend therealong when said sleeve and probe are aligned;

a connection on the proximal end of the hollow sleeve to connect the hollow sleeve to the housing;

an inner surface of the hollow sleeve formed, shaped, and sized to prevent contact with the outer surface of the elongate ultrasonic probe along its length so that there is generally a clearance between the inner surface and the outer surface when said sleeve and probe are aligned; and

said inner surface having an inside diameter adjacent the flange, when the sheath is aligned with the probe, that is generally and substantially the same as the outside of the flange thereby forming generally a barrier to the passage of material into the clearance.

13. The protective sheath of claim 12 wherein the hollow sleeve is generally metallic.

14. The protective sheath of claim 12 wherein the hollow sleeve is generally